

Starry Stonewort Survey

Farm Island Underwater Survey For Starry Stonewort and Other AIS

Ellie Joing



Farm Island Underwater Survey For Starry Stonewort and Other AIS

Starry stonewort or *Nitellopsis obtusa* is what's known as an aquatic invasive species (AIS) here in Minnesota. AIS damage our lakes by outcompeting native species for resources such as food, light and space while disrupting natural ecological cycles. In the instance of starry stonewort, the weed forms dense mats that choke out other native vegetation and block available sunlight (“An Invasive Species We Need to Watch”, 2019). These dense mats can also impede fish behavior like spawning and create nuisances for recreational users.

To identify starry stonewort by its morphology, look for its most notable feature: the star-shaped bulbils. These are typically 3–6 mm wide (about the size of a grain of rice) and often appear in clusters around nodes, sometimes buried in sediment. From each node, 4–6 bright green branchlets radiate in a whorled arrangement, giving it a grassy appearance (MNDNR). Because bulbils may be inconspicuous early in the season, surveys conducted in mid-summer through early fall—when biomass and bulbils are most visible—yield the best results.

In order to help determine if Starry Stonewort has made its way to Farm Island Lake, Ellie Joing and dive partner surveyed the two boat launches on September 13. The survey was made possible thanks to dedicated lake association members who generously donated their time and pontoons.

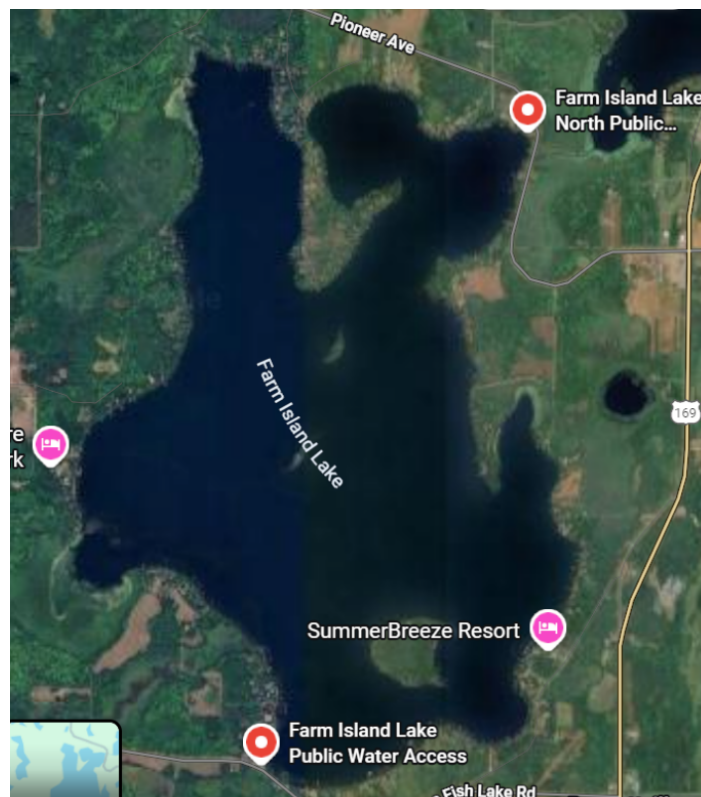
The Dive Plan

Predive

The survey focused on the two public access points on Farm Island Lake (Figure 1). Aquatic invasive species are most commonly introduced when boats travel between lakes and enter at public accesses. It is therefore logical to assume that if starry stonewort were introduced to Farm Island Lake, it would likely first appear at one of these sites.

Figure 1

Dive Locations of Northern and Southern Public Boat Accesses.



Starry Stonewort can grow up to 20 ft deep, yet the plan for the search was to aim to be at a depth of 4-12 feet since Starry Stonewort is most commonly found at depths of 3-13 feet (Kipp, 2024). When covering a large underwater area, scuba divers often employ consistent patterns to ensure goals can be met as efficiently as possible. There are 3 main types of search patterns when completing a search and recovery dive; Circular search, Expanding square search, and U pattern. A Basic U-pattern dive was chosen as it works best for covering large areas, following shorelines, and was the most practical to implement when surrounded by a weed density that could otherwise tangle lines.

Dive

On Saturday, September 13th, 2025 at around 2 PM, the survey began at the northern most point of Public Water Access South referenced on Figure 1. The air temperature was 81°F with the water sitting just below 65°F. The visibility was surprisingly good for this time of year at an estimated 10 feet. The area around the southern boat launch is much deeper when compared to the northern site. Due to this, the search area was larger at the southern site. A general U-pattern as seen in Figure 2 was followed while moving North to South. The dive began from a boat located (indicated by the red 'X') near lakeshore homes north of the access, then followed the shoreline to another boat south of the access (indicated by purple 'X').

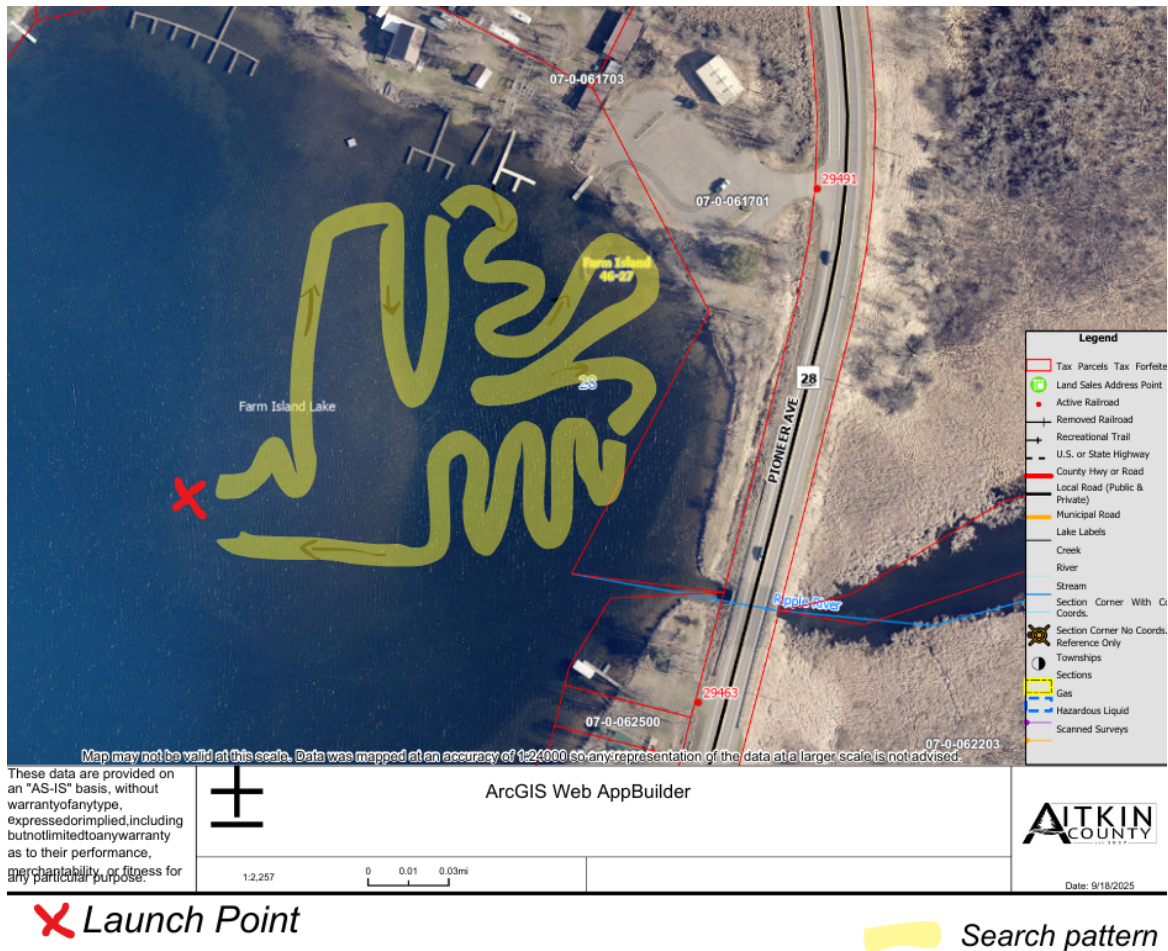
Dive Route at the Southern Public Access.



After just about an hour and ten minutes of searching, Ellie and dive partner surfaced having found no Starry Stonewort. The group then traveled via pontoon to the North boat launch and changed to fresh tanks.

Figure 3

Dive Route at the Northern Public Access.



The dive at the northern boat launch lasted around 55 minutes and concentrated around the small deep area by the launch that was surrounded by shallows (2-5 ft deep). No Starry Stonewort was observed during that time.

Results

In this instance, having no results is the best result. Meaning, **no starry stonewort was observed** at either boat launch indicating that it has not found its way into Farm Island Lake at

this time. However, another AIS, Zebra mussels, were observed in numbers at both boat launches. This was to be expected as zebra mussels have had a known presence in Farm Island lake since 2018 and confirmed in 2020 (MNDNR). One thing that was noted by the divers was that the first site (Public Access South) had many small zebra mussels covering everything from sticks and weeds and native mussels. Comparatively, the zebra mussels observed at the northern boat launch were larger in size and fewer in number. The southern site had a higher density of weeds, sandier bottom, and deeper water. Water clarity was similar at both sites. Many fish were observed amongst the weeds at both sites including bowfin, large mouth bass, black bullhead, and lots of bluegills.

Conclusion

Starry stonewort is a persistent invader threatening Minnesota's freshwater ecosystems. Effective management requires early detection, accurate identification, and sustained suppression efforts. Unlike vascular plants, it reproduces only through fragmentation and bulbils—small, star-shaped structures that can survive buried in sediment. First confirmed in the state in 2015, it spreads rapidly through human activity, forming dense mats that outcompete native plants, impede fish spawning/habitat, and disrupt recreation. Starry stonewort is extremely difficult to eradicate; so it is best to protect lakes so it never gets introduced in the first place. Being aware of this invasive species is a crucial step in preventing its spread and keeping lakes like Farm Island enjoyable for generations to come.

Remember; Clean, Drain, and Dry aquatic equipment!

References

- “An Invasive Species We Need to Watch: Be Aware.” *Starry Stonewort*, 10 July 2019, starrystonewort.com/.
- Kipp, R.M. “Starry Stonewort (Nitellopsis Obtusa) - Species Profile.” *USGS Nonindigenous Aquatic Species Database*, 8 Aug. 2024, nas.er.usgs.gov/queries/FactSheet.aspx?SpeciesID=1688.
- “Starry Stonewort (Nitellopsis Obtusa).” *Minnesota Department of Natural Resources*, 15 Apr. 2025, www.dnr.state.mn.us/invasives/aquaticplants/starrystonewort/index.html.